

What is claimed is:

1 1. A surgical instrument for treating female urinary stress incontinence comprising:

- 2 a) a sling contoured to the anatomical configuration of the mid-urethra, proximal
3 urethra and base of the bladder for implanting into the lower abdomen of a female
4 providing support to mid-urethral and bladder neck sphincteric continence sites as
5 well as support for the base of the bladder, said sling defining in part a tissue
6 remodeling portion fixedly attached to and surrounding a mesh section; and
7 b) a sling transfer instrument having a distal end and a proximal end, said instrument
8 defining in part a progressively curved shaft portion positioned between distal and
9 proximal ends with an attached handle located at its proximal end, and a means for
10 attaching said sling to the distal end of said shaft.

1 2. The sling transfer instrument of claim 1 wherein first handle further comprises a digit
2 control accommodation, said digit accommodation dimensioned approximately 2.5
3 to 4.5 cm in length, 1.0 to 4.0 cm in width and 1.5 cm in depth.

1 3. The mesh sling of claim 1 wherein said mesh portion is comprised of non-
2 absorbable polymers and filaments of said mesh have a diameter from about .002
3 inch to about .08 inch.

1 4. The mesh sling of claim 1 wherein said mesh portion is comprised of absorbable
2 polymers and filaments of said mesh have a diameter from about .012 inch to about
3 0.1 inch.

1 5. The mesh sling of claim 1 wherein said mesh portion is approximately 60 cm in
2 length, approximately 1.5 cm to 3.0 cm at its widest and generally center most
3 position and approximately 1.0 cm wide at each of its opposite ends.

1 6. The transfer instrument of claim 1 wherein said progressively curved shaft portion
2 has a diameter from about 3.5 mm to about 4.0 mm and a progressive curve with a
3 maximum radius of approximately 5.1 cm.

1 7. The transfer instrument of claim 1 wherein said distal end of said shaft portion is
2 oriented in a direction opposite that of said shaft's curved portion, said distal end of
3 said shaft portion being approximately 1.0 cm in length and approximately 4.0 mm
4 in width at an end opposite an end with handle attached to said shaft portion.

1 8. The transfer instrument of claim 1 wherein the progressively curved shaft is further
2 comprised of a luminous coating.

- 1 9. A surgical instrument for treating female urinary stress incontinence comprising:
- 2 a) a sling contoured to the anatomical configuration of the mid-urethra, proximal
- 3 urethra, bladder neck and base of the bladder for implanting into the lower abdomen
- 4 of a female providing support to mid-urethral and bladder neck sphincteric
- 5 continence sites as well as support for the base of the bladder to restore the normal
- 6 anatomical relationship of the urethra to the bladder, said sling defining in part a
- 7 mesh section fixedly attached to and surrounding a tissue remodeling portion; and
- 8 b) a sling transfer instrument having a distal end and a proximal end, said instrument
- 9 defining in part a progressively curved shaft portion positioned between distal and
- 10 proximal ends with a first detachable handle located at its proximal end, a second
- 11 attachable handle positioned said shaft's distal end, and a means for attaching said
- 12 sling to the proximal end of said shaft.
- 1 10. The sling transfer instrument of claim 9 wherein said first handle further comprises
- 2 a digit control accommodation, said digit accommodation dimensioned
- 3 approximately 2.5 to 4.5 cm length and 1.0 to 4.0 cm in width and approximately 1.5
- 4 cm in depth.
- 1 11. The mesh sling of claim 9 wherein said mesh portion is comprised of non-
- 2 absorbable polymers and filaments of said mesh have a diameter from about .002
- 3 inch to about .08 inch.

1 12. The mesh sling of claim 9 wherein said mesh portion is comprised of absorbable
2 polymers and filaments of said mesh have a diameter from about .012 inch to about
3 0.1 inch.

1 13. The mesh sling of claim 9 wherein said mesh center portion is approximately 4.0 cm
2 in length, approximately 2.5 cm at its widest and generally center most position and
3 approximately 1.0 cm wide at each of its opposite ends.

1 14. The transfer instrument of claim 9 wherein said progressively curved shaft portion
2 has a diameter from about 3.5 mm to about 4.0 mm and a progressive curve with a
3 maximum radius of approximately 5.1 cm.

1 15. The transfer instrument of claim 9 wherein said tip proximal end of said shaft
2 portion is oriented in a direction opposite that of said shaft's curved portion, said
3 proximal end of said shaft 1.0 cm in length and approximately 4.0 mm in width at an
4 end opposite that end attached to said shaft portion.

1 16. The transfer instrument of claim 9 wherein said progressively curved shaft portion
2 has a diameter from about 3 mm to about 4.5 mm and a progressive curve with a
3 maximum radius of approximately 4 cm.

1 17. The transfer instrument of claim 9 wherein the progressively curved shaft is further
2 comprised of a luminous coating.

1 18. A suprapubic method for treating female urinary stress incontinence comprising:
2 a) providing a sling defining in part a tissue remodeling portion and a mesh
3 section and contoured to the anatomical configuration of the mid-urethra,
4 proximal urethra and base of the bladder;
5 b) providing a sling transfer instrument having a distal end and a proximal end
6 with a progressively curved shaft portion positioned between said distal and
7 proximal ends with an insertion handle located at the instrument's proximal
8 end;
9 c) positioning the sling transfer instrument's insertion handle within the human
10 hand and utilizing said handle to guide the curved tip at the instrument's
11 distal end through the abdominal wall, through the retropubic space allowing
12 allow the tip of the instrument to be in contact with the posterior surface of
13 the pubic bone as it traverses the retropubic space, and continues into the
14 vagina;
15 d) providing a second sling transfer instrument and repeating step (c);
16 e) performing cystoscopy when the tips of both instruments are positioned
17 within the vagina;
18 f) attaching said sling to the each of the distal ends of the sling transfer
19 instruments positioned in accordance with steps (c) and (d);

- 20 g) withdrawing or otherwise positioning the distal ends of the sling transfer
21 instruments positioned in accordance with steps (c) and (d) to cause the
22 attached sling to form a U-shape around mid-urethral and bladder neck
23 sphincteric continence sites; and
24 h) displacing said sling from the sling transfer instruments.

1 19. The method of claim 18 further comprising the adjusting of sling tension via a sling
2 tension measurement component.

1 20. A transvaginal deployment method for treating female urinary stress incontinence
2 comprising:

- 3 a) providing a sling defining in part a tissue remodeling portion and a mesh
4 section and contoured to the anatomical configuration of the mid-urethra,
5 proximal urethra and base of the bladder;
6 b) providing a sling transfer instrument having a distal end and a proximal end
7 with a progressively curved shaft portion positioned between said distal and
8 proximal ends with a detachable insertion handle located at the instrument's
9 proximal end;
10 c) positioning the sling transfer instrument's detachable insertion handle within
11 the human hand and using said handle to guide the curved tip at the
12 instrument's distal end through the vaginal wall, behind the pubic bone,

13 through the abdominal wall and exiting the abdominal wall below the pubic
14 hair line;

15 d) disengaging the detachable insertion handle located at the instrument's
16 proximal end from the progressively curved portion of sling transfer tool;

17 e) attaching a sling transfer handle to the exited curved tip;

18 f) attaching the sling of step (a) to the sling transfer instrument's proximal end;

19 g) positioning the sling transfer instrument's sling transfer handle within the
20 human hand and using said handle to retrieve or otherwise pull the sling
21 attached to the instrument's proximal end through the vaginal wall, behind
22 the pubic bone, through the tissues of the abdomen traversing perforations
23 made in the vaginal wall and abdominal wall previously in step (c);

24 h) providing a second sling transfer instrument and repeating steps (c) through
25 (g) on a side of the body to cause the sling to be positioned to form a U-
26 shape around mid-urethral and bladder neck sphincteric continence sites;

27 i) displacing said sling from the sling transfer instrument subsequent to said
28 sling's passage through the abdominal wall.

1 21. The method of claim 20 further comprising the adjusting of sling tension via a spring
2 loaded sling tension measurement component.